Procter&Gamble

The Procter & Gamble Company
Winton Hill Technical Center
6071 Center Hill Avenue, Cincinnati, Ohio 45224-1709

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March 3, 2000

Docket Management Office
5630 Fisher's Lane
Rockville, MD 20852

Dear Madam:

We wish to submit the enclosed report and cover letter entitled "FP-146 Final Report - Acute Consumption Study of Olean or Full-Fat Potato Chips Among Adult and Teenage Snack Eaters" to the olestra docket #00F-0792 so that it is publicly available. This report was previously submitted to Mary Ditto of FDA's Office of Pre-market Approval on August 24, 1997.

In addition, this information is available in the publication listed below which has already been submitted to the olestra docket: We attached another copy for your convenience.

> Cheskin LJ, Miday R, Zorich N, Filloon T, Gastrointestinal symptoms following consumption of olestra or regular triglyceride potato chips, JAMA, January 14, 1998 - Vol. 279, No. 2, 150-152

Please let me know if you have any questions (513-634-6808).

Thank you.

Sincerely,

THE PROCTER & GAMBLE COMPANY

Greg Allgood/rd

Greg Allgood, Ph.D.
Associate Director
Regulatory & Clinical Development

Enclosure

00F-0792

RPT 8

Gastrointestinal Symptoms Following Consumption of Olestra or Regular Triglyceride Potato Chips

A Controlled Comparison

Lawrence J. Cheskin, MD; Robert Miday, MD; Nora Zorich, MD, PhD; Thomas Filloon, PhD

Context.—Olestra, a nonabsorbable, energy-free fat substitute used in snack foods, has been anecdotally reported to cause gastrointestinal (GI) adverse events, although such effects were not expected based on results from randomized trials, in which it was consumed in typical snack patterns.

Objective.—To determine whether ad libitum consumption of potato chips made with the fat substitute olestra results in a different level of GI symptoms than regular chips made with triglyceride (TG).

Design.—Randomized, double-blind, parallel, placebo-controlled trial.

Setting.—A suburban Chicago, Ill, multiplex cinema.

Subjects.—A total of 1123 volunteers aged 13 to 88 years.

Intervention.—Subjects were given a beverage and an unlabeled, white 369-g (13-oz) bag of potato chips made with olestra or TG during a free movie screening.

Main Outcome Measures.—Total and specific GI symptoms reported during a telephone interview conducted from 40 hours to 10 days after ingestion; level of potato chip consumption; and satiety level.

Results.—Of 563 evaluable subjects in the olestra chip group, 89 (15.8%) reported 1 or more GI symptoms, while 93 (17.6%) of the 529 evaluable subjects in the regular TG chip group did so (difference in symptom frequency between olestra and TG, −1.8; 95% confidence interval, −6.2 to 2.7; P=.47). For specific GI symptoms (eg, gas, diarrhea, abdominal cramping), there were no significant differences between olestra and TG chips. Fewer olestra chips were consumed than TG chips (60 vs 77 g [2.1 vs 2.7 oz]; P<.001), with olestra chips receiving lower taste scores (5.6 vs 6.4 on a 9-point scale; P<.001). Consumption levels did not correlate with the rate of symptom reporting in either the olestra or TG group. There was no difference in satiety scores between olestra and TG chips (5.7 vs 5.9 on a 9-point scale; P=.07).

Conclusions.—This study demonstrates that ad libitum consumption of olestra potato chips during 1 sitting is not associated with increased incidence or severity of GI symptoms, nor does the amount consumed predict who will report GI effects after short-term consumption of either olestra or TG potato chips.

JAMA. 1998;279:150-152

From the Division of Gastroenterology, Department of Medicine, The Johns Hopkins University School of Medicine, Baltimore, Md (Dr Cheskin), and the Regulatory and Clinical Development Division, Procter & Gamble Company, Cincinnati, Ohio (Drs Miday, Zorich, and Filloon).

Dr Cheskin is a consultant to Procter & Gamble. The terms of this arrangement are being managed by The Johns Hopkins University in accordance with its conflict of interest policies.

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A DIET HIGH IN FAT is now well known to be associated with obesity and heart disease. The American Heart Association recommends a diet in which fat contributes 30% or less of total energy. One factor making it difficult for individuals to lower their fat intake is the lack of availability of low-fat foods with taste and aesthetics comparable to the full-fat varieties.

Olestra is a nonabsorbable, energy-free fat substitute approved by the US Food and Drug Administration (FDA) for use in the preparation of snack foods, including potato chips, corn chips, and crackers.[1] Olestra is a mixture of hexa-, hepta-, and octa-esters of sucrose formed from long-chain fatty acids prepared from any edible oil. Because olestra is not hydrolyzed by pancreatic enzymes,[2] it is not absorbed[3] and provides no dietary energy or fat. Extensive studies in laboratory animals and humans were reviewed by the FDA in its determination of the safe use of olestra in foods.[1,4]

There has been considerable publicity around anecdotal reports of consumers experiencing gastrointestinal (GI) adverse events from olestra.[5] We were interested in conducting a carefully controlled, blinded study that would allow a large number of participants unlimited access to chips in a single sitting (about a 2-hour period).

Participants and Methods

We studied 1123 adult and teenaged individuals who responded to recruitment flyers distributed at a suburban Chicago, Ill, multiplex cinema soliciting participants for a potato chip test at the movies. Potential subjects completed a telephone screening. The only exclusionary criteria were employment at a food or market research firm or participation of more than 2 individuals per household. Participants were scheduled for their choice of 4 first-run movies being shown on the study evenings and were instructed to eat their evening meal 1 to 2 hours prior to arriving at the theater. The theaters were closed to the public during the study.

The study protocol was approved by the local institutional review board. Written informed consent was obtained from all participants, as well as from a parent or guardian for minors. Two free

movie passes were given to each participant as an incentive.

Prior to the movie, participants were assigned to 1 of the 2 test groups via a separate randomization schedule generated for each of 6 sex and age strata (13-17, 18-34, and >34 years) (Figure). Each participant was then given a plain, white, coded 369-g (13-oz) bag of test chips (either regular Frito-Lay Ruffles or Frito-Lay MAX Ruffles made with olestra) by study staff, who were blinded to test group assignment. Participants also received their choice of beverage (various 960-mL [32-oz] soft drinks) and were asked to be seated in the theater at least 1 seat apart from other participants. They were instructed to consume as much or as little of their potato chips and beverage as they liked and not to share with anyone else. The theaters were monitored by several study staff during the movies.

At the conclusion of the movie, participants clipped their bags of potato chips shut; noted the approximate amount of beverage they had consumed; and completed a brief questionnaire regarding product acceptance, subjective satiety, and sensory attributes. Bags of chips were subsequently weighed to determine amounts of consumption.

Beginning 40 hours after the movie, trained telephone interviewers (Elrick & Lavidge, Chicago) began collecting information on any adverse events experienced since the movie. All participants were specifically asked if they had any digestive symptoms during or since the movie and, if so, to specify those symptoms. The participant's own words were captured; additional information, including timing and severity, was completed for each reported symptom. Symptom severity, was rated on a scale of mild, moderate, or severe, based on no, partial, or complete impairment of daily activities, respectively. Each participant was also asked about preexisting food intolerances or GI medical conditions. Multiple attempts were made to telephone all participants within 4 days of the movie. Attempts to contact those individuals not reached continued for another week.

The study was designed to provide 80% power (at .05 level) for detecting true differences in proportions of symptoms of 10% vs 15%, based on 700 subjects per group. All symptoms were classified blinded according to an adverse event coding dictionary.[5] Incidence of GI symptoms by category was compared between the olestra and triglyceride (TG) potato chip groups using the Fisher exact test. Treatment comparisons of consumption, satiety, and preference data were made using a 2-sample t test or Wilcoxon rank-sum test. All P values listed are 2-sided and were not adjusted for the multiplicity of variables being compared. Approximate 95% confidence intervals for the difference in 2 proportions were constructed using the standard, large-sample normal approximation method.

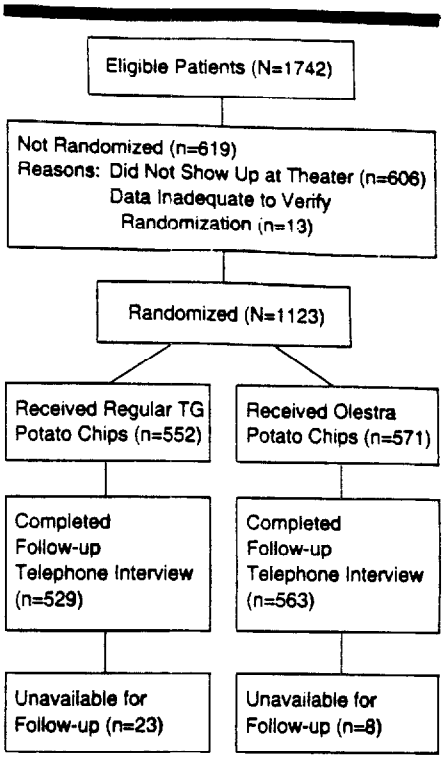
Results

Of the 1742 individuals qualified for the study, 1123 kept their appointment times and viewed a movie. There were 31 individuals who could not be recontacted, leaving a total of 1092 evaluable subjects for data analysis. Follow-up telephone interviews had been completed by day 4 for 89% and by day 10 for 99% of these participants.

There were no significant differences between the olestra and TG groups in sex, race, or age composition (56% vs 58% female and 87% vs 86% white, with a mean age of 35.4 vs 34.7 years, respectively; $P>.40$). There was a broad range of chip consumption in both groups, with the median consumption of TG chips somewhat higher than that of olestra chips (77 g vs 60 g [2.7 oz vs 2.1 oz]; $P<.001$). Overall chip consumption was similar across age groups, but males generally consumed more chips than females (median, 80 g vs 60 g [2.8 oz vs 2.1 oz]; $P<.001$). The overall palatability of the TG chips was also rated higher than the olestra chips, with a mean score of 6.4 vs 5.6 on a 9-point overall preference scale ($P<.001$). However, there were no significant differences between the groups in satiety, as indicated by mean satiety scores of 5.9 vs 5.7 for TG and olestra chips, respectively, on a 9-point fullness scale, with 9 being "extremely full" ($P=.07$), nor were any significant differences seen in beverage consumption, choice of beverage, or time since last meal prior to the movie.

There were 3 adverse events reported prior to the scheduled recall: (1) a participant had nausea and vomiting during the movie after eating 14 g (0.5 oz) of olestra chips (she reported feeling ill prior to the movie); (2) a participant had nausea and vomiting after eating 51 g (1.8 oz) of TG chips (the only individual in the study who reported seeking the care of a physician); and (3) a participant had cramping, diarrhea, and fecal incontinence the morning after the movie after eating 289 g (10.2 oz) of TG chips. The remaining experiences were collected as part of routine "callbacks."

Analysis of the incidence of GI adverse events indicated no significant difference between the 2 groups, with 17.6% and 15.8% of the TG and olestra subjects, respectively, reporting 1 or more GI complaints ($P=.47$) (Table). There were also no significant differences or trends between groups in the incidence of any of the



Progress of study participants during randomization and follow-up. TG indicates triglyceride.

14 individual GI symptoms reported. The overall mean symptom severity for any GI event was not different between groups (mean, 1.3; $P=.83$), nor was there a significant difference in symptom severity for any GI event between olestra and TG in individuals eating more than 113 g (4 oz) of chips (mean, 1.5 vs 1.3; $P=.49$). The percentage of individuals with any GI symptom and with each of the specific symptoms (gas, diarrhea, abdominal pain, upset stomach, abdominal cramping, and loose stool) was compared between olestra and TG groups across 4 chip-consumption levels (0-57, 57-113, 113-170, and 170-369 g [0-2, 2-4, 4-6, and 6-13 oz). There was no indication of increasing symptom incidence with greater consumption in either the olestra or TG group. Also, there were no significant differences between the 2 groups in incidence within 7 symptom and 4 consumption categories (28 comparisons), except for 2 isolated findings of increased incidence of any GI symptom for the TG group in the 57- to 113-g (2- to 4-oz) category (20.6% vs 11.3%; $P=.001$) and increased upset stomach for the olestra group in the 0- to 57-g (0- to 2-oz) category (2.6% vs 0%; $P=.05$).

In subjects with a history of GI disorders, there was no greater frequency of GI complaints in those receiving olestra than TG (6/33 [18%] vs 6/29 [21%], $P>.99$).

Comment

We found no increased incidence or severity of GI symptoms of any type in a

Adverse Events Summary*

Adverse Event	Treatment Group: TG (n=529)	Treatment Group: Olestra (n=563)	P Value	Difference (95% CI)†
Any GI event	93 (17.6)	89 (15.8)	.47	−1.8 (−6.2 to 2.7)
Gas	34 (6.4)	27 (4.8)	.29	−1.6 (−4.4 to 1.1)
Diarrhea	14 (2.6)	17 (3.0)	.72	0.4 (−1.6 to 2.3)
Abdominal pain	19 (3.6)	13 (2.3)	.22	−1.3 (−3.3 to 0.7)
Upset stomach	11 (2.1)	11 (2.0)	>.99	−0.1 (−1.8 to 1.5)
Abdominal cramping	10 (1.9)	11 (2.0)	>.99	0.1 (−1.6 to 1.7)
Loose stools	6 (1.1)	9 (1.6)	.61	0.5 (−0.9 to 1.8)
Other GI events‡	21 (4.0)	19 (3.4)	.63	−0.6 (−2.8 to 1.6)

*TG indicates triglyceride; CI, confidence interval; and GI, gastrointestinal. All treatment group values are number (percentage) of subjects reporting 1 or more events.
†Values are the difference (95% CI) in symptom frequency between olestra and TG groups.
‡Other GI events included nausea, bloating, indigestion, aftertaste, belching, constipation, vomiting, or bloody stool.

large group of subjects consuming olestra chips ad libitum during 1 sitting in a movie theater. While this setting may be unique for a clinical trial, the study was structured to meet rigorous controlled clinical trial standards under conditions typical for the use of the snack foods.

Overall preference for olestra potato chips was slightly lower, and this is probably reflected in the 22% lower chip consumption in the olestra group. Despite lower consumption, the olestra group reported being no less satiated than the TG chip group. This suggests a previously reported[7] possibility that olestra use will reduce energy and fat intake, aiding weight control in those who consume potato chips. While the median consumption of olestra chips was less than TG chips, it was more than 57 g (2 oz), which is more than a typical single-serving snack-sized bag of chips, and there were 155 subjects who consumed more than 113 g (4 oz) of olestra chips (>33 g of olestra). Thus, the consumption levels were adequate to ensure that enough olestra was consumed to evaluate potential GI effects. However, even in the participants consuming more than 113 g (4 oz), there were no differences observed in the frequency or severity of reported GI symptoms between groups, nor was there any indication of a dose-response relationship of increasing symptoms with higher consumption levels in either test group. The 2 statistically significant findings (increased upset stomach in the 0- to 57-g [0- to 2-oz] olestra group and increased incidence of any symptom in the 57- to 113-g [2- to 4-oz] TG group) appear likely to be due to random variation.

The information label on olestra products states that "olestra may cause loose stools and abdominal cramping." The current study findings do not support this statement. The label primarily reflects the results from 2 clinical studies in which subjects were required to consume olestra at every meal for 56 consecutive days. In those studies there were statistically significant increases (19%-42%) in mild to moderate GI symptoms in persons eating 20 or 32 g of olestra per day in foods (equivalent to 68-111 g [2.4-3.9 oz] of chips relative to the current study) compared with placebo subjects.[8,9] However, in other studies conducted under ad libitum home-use conditions that included more than 3500 participants, no differences were found in the reporting of GI symptoms compared with TG snack control groups.[10]

The manufacturer of olestra is currently conducting postmarketing surveillance via toll-free telephone numbers on packages of olestra-containing snack products. Reporting frequency has been related to news media coverage on the controversy about potential GI effects. While the current study was designed to evaluate symptom occurrence under conditions at 1 sitting, this type of consumption constitutes the majority of consumer complaints to the manufacturer to date (81%). These same individuals report a median consumption of 48 g [1.7 oz] of chips.[11] Thus, these reports would not appear to be supported by the findings in the present study.

What, then, are alternative explanations for the symptoms experienced by these consumers and by the participants in the present study? It has been demonstrated in a large-scale survey that functional GI symptoms are quite common in the general population, with up to 69% of individuals reporting 1 or more symptoms during a 3-month period.[12] Food intolerances are also commonly reported in the population.[13] Of note, however, are our findings that increased symptom rates were not observed in individuals consuming more chips and that there was a lack of association between reported history of GI problems and symptoms in the present study. Finally, because possible GI symptoms were mentioned in the informed consent, a potential "nocebo," or negative placebo effect, may be increasing the rate of reporting. For example, in 1 published study, a 6-fold increase in the number of patients withdrawing from a trial because of minor GI symptoms was found when a statement outlining these possible adverse effects was included in the informed consent.[14]

Regardless of the potential explanations for the high rate of GI symptoms reported, we were unable to demonstrate any increase in the frequency of GI symptoms when participants ate as many olestra potato chips as they cared to at 1 time. Previous and ongoing studies address GI symptom incidence under a variety of other consumption settings. The present findings provide practical information on the effects of olestra consumed in a typical fashion.

Funding for this study was provided by Procter & Gamble Company, Cincinnati, Ohio.

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FP-146

Acute Consumption Study of Olean or Full-Fat Potato Chips Among Adult and Teenage Snack Eaters

The Procter & Gamble Company
Regulatory and Clinical Development
Cincinnati, OH

FP-146

Acute Consumption Study of Olean or Full-Fat Potato Chips
Among Adult and Teenage Snack Eaters

Regulatory Compliance and Quality Assurance

This study was conducted in compliance with Good Clinical Practices as proposed in the United States 21 Code of Federal Register 50, 52, and 56. Data contained in this report have been checked by Procter & Gamble and Walker Clinical Evaluations, a division of Collaborative Clinical Research, Inc. against original data sheets from the clinical site or sub-contractors.

SPONSOR'S FINAL REPORT

FP-146
Acute Consumption Study of Olean or Full-Fat Potato Chips Among Adult and Teenage Snack Eaters

Study Number:	Procter & Gamble Study Number FP-146
Study Dates:	December 10-11, 1996
Principal Investigator:	Lawrence J. Cheskin, MD Associate Professor of Medicine Johns Hopkins University School of Medicine Johns Hopkins Bayview Medical Center 4940 Eastern Avenue Baltimore, MD 21224
Clinical Research Organization:	Walker Clinical Evaluations 6963 Hillsdale Court Indianapolis, IN 46250
Sponsor:	The Procter & Gamble Company Winton Hill Technical Center 6071 Center Hill Avenue Cincinnati, OH 45224
Sponsor's Study Personnel:	Project Physician: R.K. Miday, MD Clinical Monitor: J.M. Kesler, BS, MBA Project Statistician: T.G. Filloon, PhD

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* Appendices were submitted directly to the FDA's Office of Premarket Approval and portions may be requested by way of the Freedom of Information Act.

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FP-146 Final Report
Acute Consumption Study of Olean or Full-Fat Potato Chips
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The Structure of this Report

This report is organized into three sections:

I. Executive Summary
II. Manuscript
III. Additional Information Supplementing the Manuscript

Dr. Lawrence Cheskin, the principal investigator for this study, prepared with the sponsor, a manuscript for publication. This manuscript is provided in Section II and is a stand-alone document. Tables and figures referred to in the manuscript are contained within the manuscript.

Because the manuscript does not address several topics that are pertinent to this submission, we have supplemented the manuscript with additional information and analyses. This additional information is provided in Section III.

The Executive Summary provided in Section I outlines the sponsor's overall conclusions, from both the Manuscript and Additional Information sections of this submission. In the Executive Summary, the reader is referred to Tables from the Manuscript and Exhibits provided at the end of Section III.

Selected references, whether cited in the manuscript or within the section on Additional Information, are provided in Appendix P. References to information in the olestra FAP and additional information submitted to the Agency since approval, have not been resubmitted with this report.

I. Executive Summary

Background

In this randomized, placebo-controlled, double-blind study, over 1,000 adult and teenage participants were provided a 13-ounce bag of Olean (olestra) or regular triglyceride potato chips and a beverage of their choice at a movie theater. The objectives of the study were to document whether adult and teenage snack eaters would experience different gastrointestinal symptoms after a single ad. lib. eating occasion of olestra potato chips compared to regular triglycerides chips and whether there were important differences in the reporting of satiety, consumption, or taste between the two types of chips. Subjects consumed as many chips as they desired at a single eating occasion, while viewing a movie. After the movie, subjects completed a satiety and sensory questionnaire and returned uneaten chips. Two to four days after the movie individuals were re-contacted and completed a structured telephone interview regarding the occurrence of any gastrointestinal symptoms that they may have experienced since viewing the movie.

The Principal Investigator for the study was Dr. Lawrence Cheskin, Department of Gastroenterology, Johns Hopkins University School of Medicine. Dr. Cheskin had overall responsibility for the study design and execution. He, 1) collaborated with P&G in the development of all aspects of the study, 2) provided oversight to Elrick and Lavidge for the conduct of the study at the site and, 3) led the data interpretation and reporting of results. Elrick and Lavidge (E&L), a Chicago-based survey research company, provided for the recruiting of subjects, study execution and data entry. Their staff were trained in study-specific procedures and oversight was provided by Dr. Cheskin, P&G and Walker Clinical Evaluations, contract research organization, Indianapolis, IN. Walker Clinical Evaluations provided independent clinical quality assurance for the study, obtained IRB approval, participated in training E&L staff, and monitored the study at the suburban Chicago theater site and during telephone interviews. Walker Clinical Evaluations also performed an audit of the clinical database.

Key Results

There was no increase in incidence or severity of gastrointestinal (GI) symptoms in the participants consuming olestra chips (n = 563), compared to those consuming regular triglyceride chips (n = 529). The frequency of occurrence of GI complaints was actually slightly greater in the triglyceride group (17.6%) compared to the olestra group (15.8%, p = 0.47). Comparing the incidence of any of the 14 self-reported different GI symptoms also showed no significant differences or trends between the two groups, with similar frequencies of occurrence in both groups, including the symptoms of diarrhea, loose stools, abdominal cramping and pain. Also, there was no indication of any trend toward greater symptom frequency or increased symptom severity with higher chip consumption, in either test group. When comparing frequencies of the 7 symptom categories across 4 different chip consumption levels (28 comparisons), there were two isolated statistically significant differences between treatment

groups; increased overall GI symptoms among subjects who consumed 2-4 ounces of triglyceride chips and increased upset stomach among subjects who consumed 0-2 ounces of olestra chips. These isolated findings appear to be random variation and both findings become non-significant when adjustment is made for multiple comparisons, i.e., Bonferroni test (1).

Although no differences between groups were noted in the study population as a whole, it is valuable to look more closely at special cases, particularly those with more severe symptoms or those consuming larger amounts of chips, to see whether there were individuals who had unusual symptoms either by type or severity.

Severe GI symptoms: Of the 1,092 evaluable subjects, 121 reported mild symptoms, 41 reported moderate symptoms and only 10 individuals reported experiencing one or more severe GI symptoms in the study, six olestra and four triglyceride subjects (Exhibits 8 and 9, supporting data in Appendices F, G, H). Two olestra subjects (6026, 6136) reported severe diarrhea and one triglyceride subject (2100) reported severe loose stools. The olestra subjects who reported severe diarrhea, consumed only 0.15 and 0.1 ounces of chips respectively (1.7 and 0.8 grams of olestra), while the triglyceride subject consumed 10.1 ounces of chips. There were two olestra subjects (6136, 2127) reporting severe cramping/pain, who consumed 0.1 and 2.0 ounces respectively (0.8 and 16.6 grams of olestra), while one triglyceride subject (6315) consuming 2.1 ounces reported severe gas pain. The other severe symptom reports for olestra subjects included gas (5261) and thirst (5356), and for triglyceride subjects, distension (5242) and nausea, vomiting, queasiness and palpitations (5341).

Moderate GI symptoms: A greater number of triglyceride subjects (24, 4.5%) reported one or more moderate severity symptoms than olestra subjects (17, 3.0%), Exhibit 8. For the symptoms diarrhea/loose stools there were 10 triglyceride and seven olestra subjects reporting moderate severity symptoms, while for cramping/abdominal pain there were seven triglyceride and four olestra subjects.

These data fail to show any indication of individuals who are uniquely intolerant of olestra within this randomly selected study population. This is because, 1) the numbers of individuals reporting severe symptoms is small, 2) the proportions and types of severe symptoms are similar in the two test groups and, 3) there is no association of consumption level with severity. These findings are consistent with the results of the Rechallenge Test (2).

Chip consumption: While the overall chip preference and consumption was somewhat lower in the olestra group, the median olestra chip consumption was about two ounces (2.1 ounces, 17.4 grams olestra). This compares to the amount reported for single-eating occasion mean potato chip consumption from the 1991-92 NFCS menu census data, which ranged from 0.8 to 1.6 ounces in different age and gender groups (3). There were 97 subjects who consumed more than four ounces (> 33 grams of olestra) of chips in the study, including 31 eating more than six ounces. Even in the high-consuming individuals eating more than four ounces of chips, there were no differences in symptoms between the two test groups when comparing similar consumption levels, and no indication of any dose-response trend with increasing consumption level. There was also no indication of test group differences in the teen and elderly subgroups (Exhibit 13, supporting data in Appendices F, G, H).

Pre-approval Experience

Other studies in humans have demonstrated that in the context of typical snack eating situations there is little to no difference between the frequency of reporting of meaningful GI symptoms when consuming olestra or triglyceride snacks. In a very large, well-controlled study where over 709 subjects consumed 34 grams/day of olestra for 5 consecutive days, there were no statistical differences in reporting rates of diarrhea, loose stools or abdominal cramping from the placebo group (192 subjects) (4). In another controlled study in 193 individuals involving daily consumption of olestra (18 grams) or triglyceride snacks for 16 weeks there were no differences between groups in reporting rates of any gastrointestinal symptoms, including diarrhea or abdominal cramping (5). In a controlled, extended-use, market simulation study where over 3,000 participants selected Olean or triglyceride chips for consumption at home for up to five months, there were no differences from a placebo control group in rates of reporting diarrhea or abdominal cramping (6).

The studies where there have been reports of an increased incidence of abdominal cramping and diarrhea/loose stools were the 8 week nutrition studies, where subjects consumed foods made with olestra at each meal for 56 consecutive days at daily doses of 8, 20 and 32 g/d (7, 8). There were increases in abdominal cramping and diarrhea/loose stools reported by some individuals consuming 20 and 32 grams/day with onset generally after several days of repeated consumption. Changes in stool consistency and associated symptoms might be expected after several days of repeated consumption of a non-absorbed substance, as the GI tract contents reach a new average, looser consistency (e.g. after 1-2 complete transits). The reported symptoms were usually not constant, but would come and go, with the exception of a few individuals who reported mild to moderate symptoms during most of the study. All persons describing chronic symptoms were evaluated by an investigative physician at the study site and found to have normal physical examinations and normal laboratory findings (i.e., no evidence of dehydration or electrolyte disturbance). It is noteworthy that no one elected to drop from these studies because of loose stools, diarrhea, abdominal pain or cramping. Although abdominal cramping

and diarrhea and/or loose stools were increased in frequency in the 8 week studies at the 20 and 32 gram/day consumption level, it should be noted that in a concurrent 14-day study conducted at a different site, at the same olestra doses of 8, 20, and 32 g/day and with olestra consumption at every meal, there were no dose-related increases in abdominal cramping or diarrhea (9).

The current information label required on products containing olestra which states that "olestra may cause loose stools or abdominal cramping" is based primarily on the results of the eight-week clinical studies.

Relevance of Current Study to Post-Approval Experience

During the first year of marketing of Olean snack products by Frito-Lay, and Procter & Gamble, P&G has collected, via a 1-800 #, consumer reports of alleged adverse events associated with consuming olestra containing products. The vast majority of the reports (> 80%) involve consumers who report eating olestra products only one time prior to their alleged adverse experience, similar to the design of the present study, in which subjects were tested at a single eating occasion. Also, the median amount of product reportedly eaten by these consumers who called the 1-800 #, 1.7 ounces, is not atypical, and in fact, matches well with the median of 2.1 ounces of chips consumed by subjects in the present study. The most common symptoms reported by consumers have been diarrhea/loose stool, abdominal cramping and gas. The findings from the present study do not support the attribution of these symptoms to olestra snack consumption by consumers calling the 1-800 # to report GI effects. The present study however, does resemble the consumer calls in, 1) the nature of the symptoms reported, 2) the amount of olestra consumed and, 3) the fact that a single eating occasion was involved. What is different is the blinded nature of the study and the parallel control (triglyceride) group.

It is important to note the results from an ongoing, double-blind, placebo-controlled rechallenge study among 57 consumers who had previously reported (via 1-800 voluntary reports) experiencing gastrointestinal symptoms after consuming marketed olestra products. In this self-selected population, which could be considered to represent potentially "sensitive" individuals, there were no differences between the number of reports of abdominal cramping, diarrhea and/or loose stools after eating olestra chips compared to after eating regular triglyceride chips (2).

What is the explanation for the occurrence of gastrointestinal symptoms in the study participants eating Olean or regular chips and in consumers volunteering reports that attribute symptoms to Olean? One contributing factor is the extremely common occurrence of gastrointestinal symptoms in the general population. Is has been demonstrated in systematic surveys that up to 50% of individuals report one or more symptoms during a 3-month period (10). This reflects, in part, the relatively common prevalence of irritable bowel syndrome (10%-15% of individuals) and other functional bowel disorders (10-12). Recently, P&G asked Innovative Medical Research, Inc. (IMR), Baltimore MD, to conduct a telephone survey to assess the frequency of gastrointestinal symptoms in the general community. They found that nearly 25% of the 454

people surveyed claimed they had experienced symptoms of cramping, diarrhea, gas and bloating within the last 24 hours (13).

Food intolerances are also commonly reported in the population, and one might expect that a large amount of potato chip or food consumption of any type might be associated with gastrointestinal disturbances (14-15). Of note, however, are the current study findings that do not show increased symptom rates in the higher-consuming individuals. In addition, there was no association between reported history of GI problems and symptom-reporting in the study.

Finally, because possible gastrointestinal symptoms were mentioned in the informed consent, a potential "nocebo", or negative placebo effect, may have increased the rate of reporting in the study. For example, in one published study, there was a 6-fold increase in the number of patients withdrawing from the trial because of minor gastrointestinal symptoms when a statement outlining these possible side effects was included in the informed consent (16).

Regardless of the potential explanations for the gastrointestinal symptoms reported in both test groups, there was no increase in the frequency of symptoms compared to regular triglyceride chips when participants ate as many olestra potato chips as they cared to in a single-eating setting.

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II. Manuscript

Gastrointestinal Symptoms Following Acute Consumption of Olestra or Regular Triglyceride Potato Chips: A Controlled Comparison.

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Gastrointestinal Symptoms Following Acute Consumption of Olestra or Regular Triglyceride Potato Chips: A Controlled Comparison

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Abstract

Objective -- To determine whether acute *ad libitum* consumption of potato chips made with the fat substitute olestra results in a different level of gastrointestinal symptoms than regular chips made with triglyceride.

Design -- Randomized, double-blind, parallel, placebo-controlled, single center trial.

Setting -- A suburban Chicago multiplex cinema.

Subjects -- 1,136 male and female adult and teenage volunteers (age 13-88).

Intervention -- Subjects were given a beverage and a plain, white 13-ounce bag of olestra or regular triglyceride potato chips to taste test during a free movie screening, followed by a telephone recall interview regarding gastrointestinal symptoms.

Main Outcome Measures -- Reports of total and specific gastrointestinal symptoms and level of potato chip consumption.

Results -- Of 563 evaluable subjects in the olestra chip group, 89 (15.8%) reported one or more gastrointestinal symptoms, while 93 (17.6%) of the 529 evaluable subjects in the regular triglyceride chip group did so (95% confidence interval, difference of olestra-triglyceride = - 6.2 to 2.7, $p = 0.47$). For specific gastrointestinal symptoms (i.e., gas, diarrhea or loose stools, abdominal cramping), there were no significant differences between olestra and regular chips. Fewer olestra chips were consumed than regular chips (2.1 vs. 2.7 ounces, $p < 0.01$), with olestra chips receiving significantly lower scores on the taste test. Consumption levels did not correlate with the rate of symptom reporting in either the olestra or regular chip group.

Conclusions -- This study demonstrates that *ad libitum* consumption of olestra potato chips (single eating occasion) is not associated with increased incidence or severity of gastrointestinal symptoms. In addition, the level of consumption does not predict who will report gastrointestinal effects after acute consumption of either olestra or regular triglyceride potato chips

Introduction

A diet high in fat is now well known to be associated with obesity and heart disease.[1] The American Heart Association recommends a diet in which fat contributes 30% or less of total calories.[2] One factor making it difficult for individuals to lower their fat intake is the lack of availability of low-fat foods with taste and aesthetics comparable to the full-fat varieties.[3-6]

Olestra is a non-absorbable, and therefore non-caloric fat substitute that was recently approved by the United States Food and Drug Administration (FDA) for use in the preparation of various snack foods, including potato chips, corn chips, and crackers.[7] Olestra is a mixture of hexa-, hepta-, and octa-esters of sucrose formed from long chain fatty acids prepared from any edible oil. Because olestra is not hydrolyzed by pancreatic enzymes,[8] it is not absorbed from the gut.[9,10] Consequently, olestra provides no calories or digestible fat to the diet. Extensive studies in laboratory animals and humans were reviewed by the FDA in its determination of the safe use of olestra in foods.[7-11]

Nevertheless, there has been considerable publicity around anecdotal reports of consumers experiencing significant untoward effects of consuming products made with olestra, with safety concerns including gastrointestinal (GI) side effects such as excess gas and cramping, and decreased absorption of concurrently-consumed fat-soluble vitamins.[12] While the potential GI effects of olestra have been extremely well publicized, these types of reports were not expected based upon the controlled clinical data conducted prior to market introduction. In addition, these reports are largely

anecdotal and have not been subject to a controlled comparison. Therefore, we were interested in conducting a carefully controlled, blinded study that would allow a large number of participants unlimited access to chips in a single sitting (about a 2-hour period). We then monitored participants' acceptance and consumption of the chips and queried them about any gastrointestinal symptoms experienced over the next several days.

Participants and Methods

Study Population

We studied 1,136 adult and teenage subjects who responded to recruitment flyers distributed at a suburban Chicago multiplex cinema soliciting participants for a potato chip test at the movies. Potential subjects completed a telephone screening which explained the study, collected demographic information, and determined that all participants met entrance criteria. In addition to being available on one of the two scheduled movie dates, eligible participants were required to report consuming potato chips at least once within the previous month. The only exclusionary criteria were employment at a food or market research firm, or participation of more than two individuals per household. Eligible participants were scheduled for their choice of four first-run movies being shown on the study evenings, and were instructed to eat their evening meal 1-2 hours prior to arriving at the theater. The theaters were closed to the general public during the study.

The study protocol was approved by the local Institutional Review Board. Written informed consent was obtained from all participants, as well as from a parent or guardian in the case of participants aged 13-17. Two free movie passes were given to each participant as an incentive.

Theater and Recall Procedures

Prior to the movie, subjects were stratified by gender and age (13-17, 18-34, and >34) and randomly assigned to one of the two test groups (olestra chips or regular triglyceride [TG] chips). At the theater, participants handed in their informed consent and provided a time when they could be reached for the follow-up phone questionnaire 2-4 days following the movie. Each participant was then given a plain, white, coded 13-ounce bag of test chips (either regular Frito-Lay Ruffles or Frito-Lay MAX Ruffles made with olestra), by study staff who were blinded to test group assignment. Subjects also received their choice of beverage (various 32-ounce sodas), and were asked to be seated in the theater at least one seat apart from other participants. They were instructed to eat and drink as much or as little of their potato chips and beverage as they liked, and not to share with anyone else. The theaters were monitored by several study staff during the movies.

At the conclusion of the movie, participants clipped their bags of potato chips shut; noted the approximate amount of beverage they had consumed; and completed a brief questionnaire regarding product acceptance, subjective satiety, and sensory attributes. Subjects handed in their clipped bags and questionnaires before leaving the theater and were given a toll-free number to call if they had any questions or problems. Bags of chips were subsequently weighed to determine amounts of consumption. Any subjects reporting symptoms during or immediately after the movie were directed to one of the on-site physician-investigators for evaluation and collection of adverse experience information.

Beginning 40 hours after the movie, trained telephone interviewers (Elrick & Lavidge, Chicago) began contacting participants and administering a recall questionnaire to collect information on any adverse events experienced since the movie. All subjects were specifically asked if they had experienced any digestive symptoms during or since the movie, and if so, to specify those symptoms. The subject's own words were captured; additional adverse event information, including timing and severity, was completed for each reported symptom; and symptom severity was rated on a scale of mild, moderate, or severe, based on no, partial, or complete impairment of daily activities, respectively. Each participant was also asked about pre-existing food intolerances or GI medical conditions.

Multiple attempts were made to reach all participants within 4 days of the movie. Additional attempts to contact those individuals not reached continued for another week or until it was deemed that the individual was lost to follow-up.

Data Analysis

The study was designed to provide 80% power (at .05 level) for detecting true differences in proportions of symptoms of 10% vs. 15%, based on 700 subjects per group.

Before breaking the blind, all symptoms were classified according to an adverse event coding dictionary (COSTART)[13] that was modified to improve the specificity of the mid-level event term for data analysis and reporting. The assigned mid-level terms

were used for analysis. Incidence of GI symptom categories was compared between the olestra and TG potato chip groups using Fisher's exact test. Treatment comparisons of consumption, satiety, and preference data were made using a two-sample *t*-test or Wilcoxon rank-sum test. All p-values listed are 2-sided and were not adjusted for the multiplicity of variables being compared. Approximate ninety-five percent confidence intervals for the difference in 2 proportions were constructed using the standard large sample normal approximation method.

Results

Of the total of 1,742 individuals qualified for the study during the phone screening, 1,136 kept their appointment times and viewed a movie. There were 44 individuals who either could not be re-contacted or who had incomplete data, leaving a total of 1,092 evaluable subjects for data analysis. Follow-up telephone interviews had been completed by Day 4 for 89% and by Day 10 for 99% of these participants.

With respect to demographic and baseline data (Table 1), there were no meaningful differences in age, gender, race, or movie viewed between the olestra and regular TG potato chip groups. As shown in Tables 2A and 2B, there was a broad range of chip consumption in both groups, with the median consumption of regular TG chips somewhat higher than that of olestra chips (2.7 ounces vs. 2.1 ounces, $p < 0.01$). Overall chip consumption was similar across age groups, but males generally consumed more chips than females (median of 2.8 vs. 2.1 ounces, $p < 0.01$). The overall palatability of the regular TG chips was also rated slightly higher than the olestra chips, with a mean score of 6.4 vs. 5.6 on a 9-point overall preference scale, ($p < 0.01$).

However, regarding satiety, there were no significant differences between the groups, as indicated by mean satiety scores of 5.9 vs. 5.7 for regular TG and olestra chips, respectively, on a 9-point fullness scale, with 9 being "extremely full" ($p = 0.07$). Nor were any significant differences seen in beverage consumption, choice of beverage, or time since last meal prior to the movie between the two groups.

There were three early adverse experiences reported prior to the scheduled telephone recall. One of these was a participant with nausea and vomiting shortly after the movie began (after consuming less than 0.5 ounce of olestra chips). She also reported having felt ill, with nausea, on her way to the theater. The second individual called to report nausea and vomiting with onset 6 hours after consuming 1.8 ounces of regular TG chips at the movie. She was the only study participant who reported contacting a physician as a result of her symptoms. The third was a 13-year-old boy who called to report the onset of cramping within 3 hours after consuming 10.2 ounces of regular TG chips at the movie. He also reported experiencing diarrhea with slight fecal incontinence at school the next day, which resulted in his missing part of a school day. All the remaining adverse experiences were collected as part of the routine subject call-backs.

Analysis of the incidence of adverse GI events indicated no significant difference between the two groups, with 17.6% and 15.8% of the TG and olestra subjects, respectively, reporting one or more GI complaints, $p = 0.47$ (Table 3). There were also no significant differences or trends between groups in the incidence of any of the 14 individual GI symptoms reported. Comparison of the incidence of GI symptoms at

different consumption levels (Table 4), revealed no indication of increasing symptom incidence or symptom severity with high chip consumption in either the olestra or regular TG group. There were also no significant differences between the two test groups in symptom incidence within any of the consumption categories, except for two isolated findings of decreased overall GI incidence for olestra chips in the 2-4 ounce category ($p = 0.01$) and increased upset stomach incidence for olestra in the 0-2 ounce category ($p = 0.05$).

In subjects with a previous history of GI disorders, there was no greater frequency of GI complaints in those receiving olestra than regular TG (6/33, 18% vs. 6/29, 21%, $p = 1.0$).

Discussion

We found no increased incidence or severity of GI symptoms of any type in a large group of subjects consuming olestra chips at an *ad lib.* single eating occasion in a movie theater. While this setting may be unique for a clinical trial, the study was structured to meet rigorous controlled clinical trial standards under conditions typical for the use of the snack foods.

Overall preference for olestra potato chips was slightly lower, and this is probably reflected in the approximately 25% lower chip consumption in the olestra group. Nonetheless, the median consumption of olestra chips was more than 2 ounces (considerably more than a typical single-serving snack-size bag of chips), and there

were 155 subjects who consumed more than 4 ounces of olestra chips (>33 grams olestra). Thus, the consumption levels were adequate to ensure that enough olestra was consumed for us to evaluate potential GI effects. However, even in the participants consuming more than 4 ounces, there were no differences observed in the frequency or severity of reported GI symptoms between groups, nor was there any indication of a dose-response relationship of increasing symptoms with higher consumption levels, in either test group. While two statistically significant findings were seen (increased upset stomach in the 0-2 ounce olestra group and increased overall GI symptoms in the 2-4 ounce regular TG group), pattern, these appear likely to be due to random variation. Both of these differences become non-significant when statistical adjustment is made for multiple comparisons (i.e., Bonferroni). The lack of a finding of group differences in this study is also not likely to be the result of insufficient sensitivity, since the 95% confidence limits indicate that an approximate 5% difference in frequency of symptoms between groups for any GI symptom could have been detected (Table 3).

The information label on olestra products states, "olestra may cause loose stools and abdominal cramping. . . ". The current study findings do not support this statement. The label primarily reflects the results from two clinical studies in which subjects were required to consume olestra at every meal for 56 consecutive days. In those studies there were statistically significant increases (19%-42%) in GI symptoms in persons eating 20 or 32 grams of olestra per day (equivalent to 2.4-3.9 ounces of chips in the current study) compared to placebo subjects [14-15]. However, in another study conducted under *ad lib.* home-use conditions that included 3,357 participants, no

difference was found in the voluntary reporting of GI symptoms compared with a regular TG snack control group.[16]

The manufacturer of olestra is currently conducting post-market surveillance for voluntary reports of adverse experiences, via 1-800 numbers on packages of olestra-containing snack products. Reporting frequency has been related to news media coverage on the controversy about potential GI effects. The majority of the GI complaints to the manufacturer to date (81%) involve consumers who reported symptoms after eating an olestra product on one occasion only, and the median amount of product consumed by these individuals was 1.7 ounces.[14-17] Thus, these reports would not appear to be supported by the findings in the present study.

What, then, are alternative explanations for the symptoms experienced by these consumers and by the participants in the present study? It has been demonstrated in several large-scale surveys that GI symptoms are quite common in the general population, with up to 50% of individuals reporting one or more symptoms during a 3-month period. This reflects, in part, the relatively common occurrence of irritable bowel syndrome (prevalence of 11%-15%) and other functional bowel disorders.[18-20] In addition to functional GI disturbances, acute infectious illnesses can be prevalent in the community. The present study was conducted in early December, a time when one would expect higher frequencies of these viral illnesses. Food intolerances are also commonly reported in the population, and one might expect that a large amount of potato chip consumption of any type would be associated with GI disturbances.[21-23] Of note, however, are our findings that increased symptom rates were not observed in the

higher consuming individuals and that there was a lack of association between reported history of GI problems and symptoms in the present study. Finally, because possible GI symptoms were mentioned in the informed consent, a potential "nocebo," or negative placebo effect, may be increasing the rate of reporting. For example, in one published study, a 6-fold increase in the number of patients withdrawing from the trial due to minor GI symptoms was found when a statement outlining these possible side effects was included in the informed consent.[24]

Regardless of the potential explanations for the high rate of GI symptoms reported, we were unable to demonstrate any increase in the frequency of gastrointestinal symptoms when participants ate as many olestra potato chips as they cared to in a single eating setting. Previous and ongoing studies address GI symptom incidence under a variety of other consumption settings. The present findings provide practical information on the effects of olestra consumed in a typical fashion.

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Tables

Table 1.

Subject Demographics

	Treatment Group	
	Regular TG	**Olestra**
Gender (n=1,092)*	(n=529)*	(n=563)*
Female	306 (58%)	317 (56%)
Male	223 (42%)	246 (44%)
Race (n = 1,078)**	(n = 524)**	(n = 554)**
White	452 (86%)	483 (87%)
Asian	8 (2%)	19 (3%)
Hispanic	25 (5%)	21 (4%)
Black	32 (6%)	20 (4%)
Native American	2 (< 1%)	5 (1%)
Other	5 (1%)	6 (1%)
Movie (n = 1,092)*	(n = 529)*	(n = 563)*
Jingle All the Way	140 (26%)	136 (24%)
Ransom	190 (36%)	200 (36%)
Space Jam	104 (20%)	115 (20%)
The English Patient	95 (18%)	112 (20%)

Table 1.

Subject Demographics, continued

	Treatment Group	
	Regular TG	**Olestra**
Age (n = 1,066)**	(n = 516)**	(n = 550)**
13-17	71 (14%)	72 (13%)
18-34	206 (40%)	210 (38%)
35-64	220 (43%)	242 (44%)
65-88#	19 (4%)	26 (5%)
Mean age	34.7 (SD=14.8)	35.4 (SD=14.9)

* Includes all evaluable subjects.

** Does not include all subjects because not all reported race and/or age data.

Although a distinction was made between the 35-64 and 64-88 age groups for purposes of demographics, subjects aged 65-88 were included in the 34+ age category for purposes of randomization.

Table 2A.

Chip Consumption

(Median Consumption in Ounces)

Study Group	Regular		
	TG	Olestra	Overall
	(n = 529)	(n = 563)	(n = 1,092)
All Subjects	2.7	2.1	2.4
Age Group	(n = 516)*	(n = 550)*	(n = 1,066)*
13 - 17 (n = 143)	2.6	2.2	2.5
18 - 34 (n = 416)	2.8	2.1	2.4
35-64 (n = 462)	2.8	2.1	2.4
65+ (n = 45)	2.0	2.3	2.3
Gender	(n = 529)	(n = 563)	(n = 1,092)
Male	3.3	2.4	2.8
Female	2.5	1.8	2.1

* Does not include all subjects because not all reported age data.

Table 2B.

Distribution of Chip Consumption

by Percentile

(Median Consumption in Ounces)

Percentile*	Regular TG (n = 529)	Olestra (n = 563)
Minimum	0.0	0.0
10%	0.9	0.5
25%	1.7	1.1
50%	2.7	2.1
75%	4.2	3.4
90%	6.2	5.0
Maximum	11.8	12.7

* Indicates percentage of subjects who consumed ≤ stated amount of chips.

Table 3

Adverse Events Summary

Adverse Event	Treatment Group: Regular TG (n = 529)	Treatment Group: Olestra (n = 563)	p-value	Difference Olestra -TG #
Any GI event*	93 (17.6%)	89 (15.8%)	.47	-1.8 (-6.2, 2.7)
Gas	34 (6.4%)	27 (4.8%)	.29	-1.6 (-4.4, 1.1)
Diarrhea	14 (2.6%)	17 (3.0%)	.72	0.4 (-1.6, 2.3)
Abdominal pain	19 (3.6%)	13 (2.3%)	.22	-1.3 (-3.3, 0.7)
Upset Stomach	11 (2.1%)	11 (2.0%)	1.00	-0.1 (-1.8, 1.5)
Abdominal cramping	10 (1.9%)	11 (2.0%)	1.00	0.1 (-1.6, 1.7)
Loose stools	6 (1.1%)	9 (1.6%)	.61	0.5 (-0.9, 1.8)
Nausea	4 (0.8%)	7 (1.2%)	.55	0.5 (-0.7, 1.7)
Bloating	7 (1.3%)	4 (0.7%)	.37	-0.6 (-1.8, 0.6)
Indigestion	3 (0.6%)	3 (0.5%)	1.00	0.0 (-0.9, 0.8)
Aftertaste	1 (0.2%)	3 (0.5%)	.63	0.3 (-0.4, 1.0)
Belching	5 (1.0%)	2 (0.4%)	.27	-0.6 (-1.5, 0.4)
Constipation	1 (0.2%)	2 (0.4%)	1.00	0.2 (-0.4, 0.8)
Vomiting	2 (0.4%)	1 (0.2%)	.61	-0.2 (-0.8, 0.4)
Bloody stool	1 (0.2%)	0 (0.0%)	---	-0.2 (-0.6, 0.2)
Non GI event**	4 (0.8%)	8 (1.4%)	.39	0.7 (-0.6, 1.9)

Table 3

Adverse Events Summary, continued

* Number (%) of subjects reporting one or more GI event(s).

** Number (%) of subjects reporting one or more non-GI event(s). Reported events include thirst, tongue disorder, dizziness, fatigue, dehydration, headache, feeling ill, chest pain, and heart racing.

\# 95% confidence interval for the difference in symptom frequency between olestra and TG groups.

Table 4.

Most Frequent Adverse Event Rates

by Treatment and Consumption Range

	0 - 2 ounces		2 - 4 ounces		4 - 6 ounces		6 - 13 ounces	
	Regular TG (n = 175)	Olestra (n = 271)	Regular TG (n = 199)	Olestra (n = 195)	Regular TG (n = 94)	Olestra (n = 66)	Regular TG (n = 61)	Olestra (n = 31)
Any GI Symptom								
n (%)*	22 (12.6%)	53 (19.6%)	41 (20.6%)#	22 (11.3%)#	17 (18.1%)	9 (13.6%)	13 (21.3%)	5 (16.1%)
Mean Severity**	1.45	1.32	1.32	1.27	1.29	1.22	1.31	1.80
Gas								
n (%)*	11 (6.3%)	15 (5.5%)	15 (7.5%)	8 (4.1%)	5 (5.3%)	3 (4.6%)	3 (4.9%)	1 (3.2%)
Mean Severity**	1.27	1.27	1.40	1.25	1.20	1.00	1.33	3.00
Diarrhea								
n (%)*	2 (1.1%)	8 (3.0%)	6 (3.0%)	6 (3.0%)	5 (5.3%)	2 (3.0%)	1 (1.6%)	1 (3.2.%)
Mean Severity**	2.00	1.88	1.67	1.00	1.60	1.50	2.00	2.00
Stomach Pain								
n (%)*	4 (2.3%)	10 (3.7%)	9 (4.5%)	2 (1.0%)	3 (3.2%)	0 (0.0%)	3 (4.9%)	1 (3.2%)
Mean Severity**	1.75	1.40	1.44	1.00	1.33	---	1.00	1.00

III. Additional Information Supplementing the Manuscript

A. Protocol Deviations

Number of subjects randomized

The protocol states that up to 1,700 subjects will be enrolled in order to complete 1400, 700 subjects per group. A total of 1,742 were recruited and qualified for the study, while 1,136 kept their scheduled appointments, were randomized and completed the study.

Importantly, the number of individuals participating in the study remained sufficient for testing the study hypothesis. The target number of participants in the study, i.e. 1,400, would have yielded a study power to detect a 5% difference in overall gastrointestinal symptoms between treatment groups. The actual power of the study with over 1,100 participants, was sufficient to detect an absolute difference of 6% in overall GI symptoms.

Age stratification at randomization

The protocol states that subjects will be randomized by two age strata, ages 13-17 and age 18 or older. The actual randomization scheme used included three age strata, 13-17, 18-34 and 34 or older. The effect of this modification was to better ensure the age balance between the two test groups, as reflected in the subject demographics, (Table 1 of manuscript).

Timing of follow-up interview

The protocol states that subjects will be contacted within 2-4 days of viewing the movie for administration of the follow-up telephone interview. Intensive efforts were made to reach all subjects in this time period, and as noted in the subject disposition discussion, 85% of subjects were contacted. For completeness, it was decided to continue attempting to contact subjects after the four day time point and by approximately one week later over 97% of subjects had been contacted. This substantially reduced the number of participants lost to follow-up. All subjects' data were considered evaluable and were included in the analyses, in order to provide for the most complete and sensitive analysis.

A per-protocol analysis including only the 2-4 day data is provided below, which shows the same results as the more complete analysis.

B. Study Results Not Presented In The Manuscript

Subject Disposition

A total of 1,742 subjects were screened and qualified for entry to the study. Of these, 1,136 kept their scheduled appointment times, were randomized at the theater site, and viewed a movie (Exhibit 1, supporting data in Appendix I).

Thirteen subjects who were randomized could not be assigned to a treatment group because the subject number on their study card was illegible. Even though the treatment group assignment could not be verified, other pertinent study information, including follow-up, was available. There were a total of three minor gastrointestinal symptoms reported from these 13 subjects. These subjects are not included as evaluable subjects in the primary data analyses but are discussed further in the intent-to-treat analyses.

By day four, 489 of the 571 olestra subjects (86%), and 478 of the 552 TG subjects (84%) had been contacted for the follow-up telephone interviews. At completion of follow-up, 563 of 571 (see above) olestra subjects (99%) and 529 of 552 TG subjects (96%) had been contacted. The remaining eight olestra subjects and 23 TG subjects were lost to follow-up. Thus, a total of 1,092 evaluable subjects comprise the primary data set that was used for analysis.

Sensory And Satiety Data

After viewing the movie, each participant completed a survey that contained nine questions regarding sensory attributes of the potato chips, thirst and hunger/fullness. Each attribute was rated on a nine-point scale. The results of these questions are shown in Exhibit 2, supporting data in Appendices I, K). As reported in the manuscript, there was a higher overall rating for the TG chips (mean 6.4 vs 5.6, $p < 0.01$), which is consistent with the somewhat higher overall consumption of TG chips. The flavor of the TG chips was also rated higher (mean 6.4 vs. 5.4, $p < 0.01$) and the TG chips were rated more salty (6.0 vs. 4.8, $p < 0.01$). The olestra chips had marginally higher aftertaste (mean 4.6 vs. 4.4, $p = 0.05$). Subjects rated their thirst slightly higher after the TG chips (mean 4.5 vs. 4.0, $p < 0.01$). The four questions related to hunger/fullness showed no significant differences between the two test groups. In the manuscript, the overall palatability reported is the result from question 2 (overall rating) and the satiety score reported is the result from question 9 (fullness).

During the re-call telephone interview the subjects were again asked to provide an overall rating of the chips (Exhibit 2, supporting data in Appendix L). Consistent with the previous response, the TG chips were again rated higher (mean 6.6 vs 5.8, $p < 0.01$).

Beverage consumption and time from last meal

As part of the post-movie questionnaire, subjects were also asked to indicate the amount of beverage remaining in their cup (Exhibit 3, supporting data in Appendix D). The amounts indicated were not different between test groups (P = 0.97) indicating similar beverage consumption between groups.

Subjects also provided an estimate of the time elapsed since their last meal, prior to the movie (Exhibit 4, supporting data in Appendix I). The times indicated were not different between treatment groups (P = 0.43).

Adverse event coding/classification

As stated in the manuscript, all symptoms were coded according to the COSTART dictionary, which has been modified by P&G to improve the specificity of the "mid-level" term. This modification involved a systematic editing of the mid-level or "reported" term to enable mapping of verbatims specifically within COSTART codes. Exhibit 5 (supporting data in Appendix F), provides all the reported terms that were used to code GI symptoms in the study and their respective COSTART terms. Also shown are the 14 reported terms used to analyze GI symptom data in the study. All the GI symptoms were mapped to their respective reported terms and then the reported terms were combined into the final 14, used for analyses (e.g. queasiness was combined with nausea). Therefore, the data analyses were conducted on a complete set of the GI symptoms reported in the study.

Each verbatim, reported term and COSTART term, by subject, are listed in the adverse event Data Listings (Appendix F). Additional adverse event Data Listings are located in Appendices G and H.

GI symptom analyses, by demographic subgroups, severity and onset time

In Exhibits 6 and 7 (supporting data in Appendices F, G, H), GI symptom frequencies by gender, age strata and treatment group are listed. The incidence of symptoms is generally comparable in males and females and in the three age strata. There were no test-related differences in GI symptoms reported across the gender and age strata.

Exhibit 8 (supporting data in Appendix G) shows GI symptoms frequency by severity category (mild, moderate, severe). There are no statistically significant differences between test groups in severity of any of the 14 individual GI symptoms, or for the overall category that includes subjects who reported one or more symptom ("any GI").

Exhibit 10 (supporting data in Appendix H) shows the occurrence of GI symptoms by onset time. Onset time and date were collected for each symptom as part of the AE information. These data were categorized into four time frames and used to compare the two test groups. For some individuals, the time was censored due to missing or incomplete data (e.g. a date indicated, but no time). In these instances, the time was set to the earliest possible onset time and this was used to categorize the symptom.

There were no differences between groups in onset time for the occurrence of "any GI symptom" or for any of the six key symptoms, diarrhea, loose stools, cramping, pain, gas, bloating (Exhibit 10, supporting data in Appendix N).

Per-protocol GI symptom analysis

The study protocol states that subjects will be contacted for their telephone interview 2-4 days after the movie. Eighty-five percent of subjects were reached within this time window. Additionally, 12% of subjects were contacted after the 4-day time period, as described above in the protocol deviation section. Because all subjects with recall information were determined to contribute evaluable data, all were included in the primary data analyses in order to provide for the most complete and sensitive analysis. In addition, a per-protocol analysis was conducted which included only the subjects that completed their follow-up interview within the 4-day time period (Exhibit 11, supporting data in Appendices F, G, H). The results are completely consistent with the primary data analysis and there were no significant differences between groups for any GI symptom.

Intent-to-treat analysis/listing

The primary data analyses included all subjects (1,092) with complete evaluable data. In addition, there were 13 subjects considered unevaluable because their treatment assignment could not be verified. As other pertinent study information including follow-up was available for these subjects, intent-to-treat analyses was performed which included these 13 subjects. An intent-to-treat listing, which includes these subjects, is shown in Exhibit 12 (supporting data in Appendices F, G, H). There were only three reports of GI symptoms from this group of 13 subjects; one gas, one indigestion and one belching. Inclusion of these very small number of reports does not alter any findings or conclusions regardless of their treatment group assignment.

C. **Statistical Analyses Not Presented In The Manuscript**

Satiety and sensory information was collected via a 9-point scoring scale. Mean scores were compared via a two-sample t-test approach and results are given in Exhibit 2.

Additional analysis, beyond what is shown in the manuscript, was performed to compare the severity of gastrointestinal symptoms via a Mantel-Haenszel chi square analysis and is shown in Exhibit 8.

Further analysis of gastrointestinal symptom incidence was performed on the subset of subjects whose follow-up contact occurred within the 2-4 day protocol-defined window. A Fisher's exact analysis was performed and is shown in Exhibit 11.

Further analysis of the gastrointestinal symptom data (Appendix M) was also carried out to evaluate the robustness of the study conclusions. As subjects were randomization by age/gender categories, chi square analysis that takes into account this stratification, i.e., a stratified Cochran-Mantel-Haenszel test, was performed. In addition, as consumption was considered a possible covariate and a difference in consumption was observed between the two treatment groups, a logistic regression analysis was performed to compare treatment incidence using consumption as a covariate.

All of these analyses gave identical results in that there were no significant differences in incidence between the two treatment groups for any of the gastrointestinal symptoms.

EXHIBITS

FP-146 - Subject Disposition

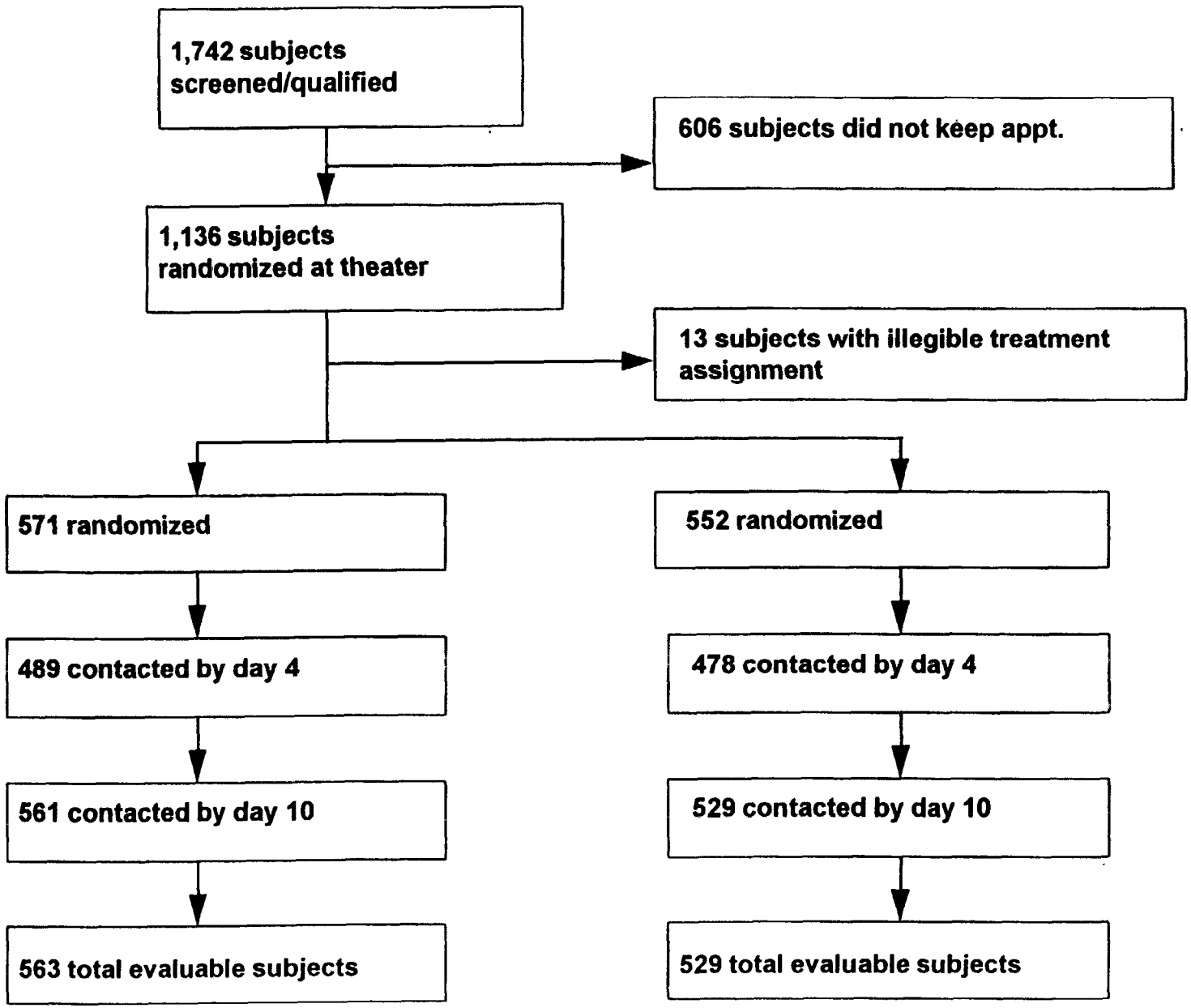

Exhibit 1

Exhibit 2. Satiety & Sensory Information from Post-Movie Questionnaire & Recall Interview

Variable	Statistic	Full-Fat (N = 529)	Olean (N = 563)	P-values
POTATO CHIP - OVERALL RATING	N	525	561	<0.001
	Mean	6.4	5.6	
	Std Error	0.1	0.1	
POTATO CHIP - FLAVOR	N	525	560	<0.001
	Mean	6.4	5.4	
	Std Error	0.1	0.1	
POTATO CHIP - AFTERTASTE	N	524	559	0.054
	Mean	4.4	4.6	
	Std Error	0.1	0.1	
POTATO CHIP - SALTY TASTE	N	525	560	<0.001
	Mean	6.0	4.8	
	Std Error	0.1	0.1	
POTATO CHIP - THIRST	N	524	558	0.003
	Mean	4.5	4.0	
	Std Error	0.1	0.1	
POTATO CHIP - DESIRE TO EAT?	N	525	559	0.144
	Mean	2.8	2.9	
	Std Error	0.1	0.1	
POTATO CHIP - HUNGER	N	524	556	0.205
	Mean	2.5	2.7	
	Std Error	0.1	0.1	
POTATO CHIP - FULLNESS	N	524	556	0.073
	Mean	5.9	5.7	
	Std Error	0.1	0.1	
AMOUNT FOOD COULD EAT	N	524	557	0.845
	Mean	3.0	3.0	
	Std Error	0.1	0.1	
POTATO CHIP - OVERALL RATING AT RECALL	N	528	563	<0.001
	Mean	6.6	5.8	
	Std Error	0.1	0.1	

Exhibit 3. Beverage Consumption By Test Group

Variable	AMOUNT	FULL-FAT (N = 529)		OLEAN (N = 563)	
Beverage Left?	Unknown	5	(0.9%)	8	(1.4%)
	None	196	(37.1%)	200	(35.5%)
	1/4 full	129	(24.4%)	153	(27.2%)
	1/2 full	131	(24.8%)	132	(23.4%)
	3/4 full	65	(12.3%)	62	(11.0%)
	Full	3	(0.6%)	8	(1.4%)

Exhibit 4. Time of Meal Consumption by Test Group

Variable	TIME	FULL-FAT (N = 529)		OLEAN (N = 563)	
How Long Ago Was Last Meal?	Unknown	5	(0.9%)	5	(0.9%)
	< 1 hour	69	(13.0%)	64	(11.4%)
	1-2 hours	207	(39.1%)	252	(44.8%)
	2-3 hours	143	(27.0%)	144	(25.6%)
	> 3 hours	105	(19.8%)	98	(17.4%)

Exhibit 5

Classification of Symptoms by Reported Terms and COSTART

COSTART	Reported Terms Analyzed	Reported Terms Included in Term Analyzed
Diarrhea	Diarrhea	Diarrhea BM Urgency Stool Freq. Incr
Diarrhea	Loose Stools	Loose Stools Soft Stools
Pain Abdo	Cramp Abdomen	Cramp Abdomen
Pain Abdo	Stomach Pain	Stomach Pain Stomach Ache Pain Gas Pain Lower Abdo. Discomfort Abdo.
Flatul	Flatulence (Gas)	Flatulence (Gas) Borborygmus
Flatul	Bloating	Bloating Distension
Nausea	Nausea	Nausea Queasy
Vomit	Vomiting	Vomiting
Dyspepsia	Upset Stomach	Upset Stomach Upset Gastroint. Distress Gastroint.
Indigestion	Indigestion	Indigestion Heartburn

Exhibit 5 - (cont'd)

Classification of Symptoms by Reported Terms and COSTART

Costart	Reported Term Analyzed	Reported Term Included
Eructat	Eructation (Belching)	Eructation (Belching)
Constip	Constipation	Constipation
Hem GI	Stools Bloody	Stools Bloody
Incontin Fecal	Fecal Incontinence	Fecal Incontinence
Taste Pervers	Aftertaste	Aftertaste

Non-GI Costarts	Reported Terms
Thirst	Thirst
Tongue Dis	Tongue Disorder
Dizziness	Dizziness
Asthenia	Fatigue
Dehydration	Dehydration
Headache	Headache
Malaise	Feeling Ill
Pain Chest	Chest Pain
Palpit	Palpitations

Exhibit 6. GI Symptom Incidence by Gender & Test Group

SYMPTOM	INCIDENCE	Male				Female			
		FULL-FAT (N = 223)		OLEAN (N = 246)		FULL-FAT (N = 306)		OLEAN (N = 317)	
Any GI	No	190	(85.2%)	207	(84.1%)	246	(80.4%)	267	(84.2%)
	Yes	33	(14.8%)	39	(15.9%)	60	(19.6%)	50	(15.8%)
Gas	No	212	(95.1%)	235	(95.5%)	283	(92.5%)	301	(95.0%)
	Yes	11	(4.9%)	11	(4.5%)	23	(7.5%)	16	(5.0%)
Diarrhea	No	220	(98.7%)	238	(96.7%)	295	(96.4%)	308	(97.2%)
	Yes	3	(1.3%)	8	(3.3%)	11	(3.6%)	9	(2.8%)
Pain	No	215	(96.4%)	239	(97.2%)	295	(96.4%)	311	(98.1%)
	Yes	8	(3.6%)	7	(2.8%)	11	(3.6%)	6	(1.9%)
Cramping	No	219	(98.2%)	242	(98.4%)	300	(98.0%)	310	(97.8%)
	Yes	4	(1.8%)	4	(1.6%)	6	(2.0%)	7	(2.2%)
Upset Stomach	No	216	(96.9%)	241	(98.0%)	302	(98.7%)	311	(98.1%)
	Yes	7	(3.1%)	5	(2.0%)	4	(1.3%)	6	(1.9%)
Loose Stools	No	220	(98.7%)	239	(97.2%)	303	(99.0%)	315	(99.4%)
	Yes	3	(1.3%)	7	(2.8%)	3	(1.0%)	2	(0.6%)
Nausea	No	222	(99.6%)	245	(99.6%)	303	(99.0%)	311	(98.1%)
	Yes	1	(0.4%)	1	(0.4%)	3	(1.0%)	6	(1.9%)
Bloating	No	222	(99.6%)	244	(99.2%)	300	(98.0%)	315	(99.4%)
	Yes	1	(0.4%)	2	(0.8%)	6	(2.0%)	2	(0.6%)
Indigestion	No	223	(100.0%)	246	(100.0%)	303	(99.0%)	314	(99.1%)
	Yes	0	(0.0%)	0	(0.0%)	3	(1.0%)	3	(0.9%)
Aftertaste	No	223	(100.0%)	246	(100.0%)	305	(99.7%)	314	(99.1%)
	Yes	0	(0.0%)	0	(0.0%)	1	(0.3%)	3	(0.9%)
Eructation	No	222	(99.6%)	245	(99.6%)	302	(98.7%)	316	(99.7%)
	Yes	1	(0.4%)	1	(0.4%)	4	(1.3%)	1	(0.3%)
Constipation	No	223	(100.0%)	245	(99.6%)	305	(99.7%)	316	(99.7%)
	Yes	0	(0.0%)	1	(0.4%)	1	(0.3%)	1	(0.3%)
Vomiting	No	223	(100.0%)	246	(100.0%)	304	(99.3%)	316	(99.7%)
	Yes	0	(0.0%)	0	(0.0%)	2	(0.7%)	1	(0.3%)
Bloody Stool	No	223	(100.0%)	246	(100.0%)	305	(99.7%)	317	(100.0%)
	Yes	0	(0.0%)	0	(0.0%)	1	(0.3%)	0	(0.0%)
Non GI	No	223	(100.0%)	244	(99.2%)	302	(98.7%)	311	(98.1%)
	Yes	0	(0.0%)	2	(0.8%)	4	(1.3%)	6	(1.9%)

Exhibit 7. GI Symptom Incidence by Age Strata & Test Group

SYMPTOM	INCIDENCE	13-17				18-34				35+			
		FULL-FAT (N = 74)		OLEAN (N = 73)		FULL-FAT (N = 208)		OLEAN (N = 213)		FULL-FAT (N = 247)		OLEAN (N = 277)	
Any GI	No	64	(86.5%)	60	(82.2%)	167	(80.3%)	186	(87.3%)	205	(83.0%)	228	(82.3%)
	Yes	10	(13.5%)	13	(17.8%)	41	(19.7%)	27	(12.7%)	42	(17.0%)	49	(17.7%)
Gas	No	72	(97.3%)	71	(97.3%)	189	(90.9%)	204	(95.8%)	234	(94.7%)	261	(94.2%)
	Yes	2	(2.7%)	2	(2.7%)	19	(9.1%)	9	(4.2%)	13	(5.3%)	16	(5.8%)
Diarrhea	No	71	(95.9%)	71	(97.3%)	204	(98.1%)	208	(97.7%)	240	(97.2%)	267	(96.4%)
	Yes	3	(4.1%)	2	(2.7%)	4	(1.9%)	5	(2.3%)	7	(2.8%)	10	(3.6%)
Pain	No	70	(94.6%)	69	(94.5%)	201	(96.6%)	209	(98.1%)	239	(96.8%)	272	(98.2%)
	Yes	4	(5.4%)	4	(5.5%)	7	(3.4%)	4	(1.9%)	8	(3.2%)	5	(1.8%)
Cramping	No	73	(98.6%)	72	(98.6%)	204	(98.1%)	209	(98.1%)	242	(98.0%)	271	(97.8%)
	Yes	1	(1.4%)	1	(1.4%)	4	(1.9%)	4	(1.9%)	5	(2.0%)	6	(2.2%)
Upset Stomach	No	74	(100.0%)	71	(97.3%)	202	(97.1%)	209	(98.1%)	242	(98.0%)	272	(98.2%)
	Yes	0	(0.0%)	2	(2.7%)	6	(2.9%)	4	(1.9%)	5	(2.0%)	5	(1.8%)
Loose Stools	No	73	(98.6%)	73	(100.0%)	205	(98.6%)	210	(98.6%)	245	(99.2%)	271	(97.8%)
	Yes	1	(1.4%)	0	(0.0%)	3	(1.4%)	3	(1.4%)	2	(0.8%)	6	(2.2%)
Nausea	No	73	(98.6%)	70	(95.9%)	207	(99.5%)	212	(99.5%)	245	(99.2%)	274	(98.9%)
	Yes	1	(1.4%)	3	(4.1%)	1	(0.5%)	1	(0.5%)	2	(0.8%)	3	(1.1%)
Bloating	No	74	(100.0%)	73	(100.0%)	208	(100.0%)	213	(100.0%)	240	(97.2%)	273	(98.6%)
	Yes	0	(0.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)	7	(2.8%)	4	(1.4%)
Indigestion	No	74	(100.0%)	73	(100.0%)	207	(99.5%)	213	(100.0%)	245	(99.2%)	274	(98.9%)
	Yes	0	(0.0%)	0	(0.0%)	1	(0.5%)	0	(0.0%)	2	(0.8%)	3	(1.1%)
Aftertaste	No	74	(100.0%)	73	(100.0%)	208	(100.0%)	213	(100.0%)	246	(99.6%)	274	(98.9%)
	Yes	0	(0.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)	1	(0.4%)	3	(1.1%)
Eructation	No	74	(100.0%)	73	(100.0%)	206	(99.0%)	212	(99.5%)	244	(98.8%)	276	(99.6%)
	Yes	0	(0.0%)	0	(0.0%)	2	(1.0%)	1	(0.5%)	3	(1.2%)	1	(0.4%)
Constipation	No	74	(100.0%)	72	(98.6%)	207	(99.5%)	213	(100.0%)	247	(100.0%)	276	(99.6%)
	Yes	0	(0.0%)	1	(1.4%)	1	(0.5%)	0	(0.0%)	0	(0.0%)	1	(0.4%)
Vomiting	No	74	(100.0%)	72	(98.6%)	207	(99.5%)	213	(100.0%)	246	(99.6%)	277	(100.0%)
	Yes	0	(0.0%)	1	(1.4%)	1	(0.5%)	0	(0.0%)	1	(0.4%)	0	(0.0%)
Bloody Stool	No	74	(100.0%)	73	(100.0%)	208	(100.0%)	213	(100.0%)	246	(99.6%)	277	(100.0%)
	Yes	0	(0.0%)	0	(0.0%)	0	(0.0%)	0	(0.0%)	1	(0.4%)	0	(0.0%)
Non GI	No	74	(100.0%)	71	(97.3%)	208	(100.0%)	212	(99.5%)	243	(98.4%)	272	(98.2%)
	Yes	0	(0.0%)	2	(2.7%)	0	(0.0%)	1	(0.5%)	4	(1.6%)	5	(1.8%)

Exhibit 8. GI Symptoms by Severity & Test Group

SYMPTOM	SEVERITY	FULL-FAT (N = 529)		OLEAN (N = 563)		P-values
Any GI	None	436	(82.4%)	474	(84.2%)	0.423
	Mild	65	(12.3%)	66	(11.7%)	
	Moderate	24	(4.5%)	17	(3.0%)	
	Severe	4	(0.8%)	6	(1.1%)	
Diarrhea	None	515	(97.4%)	546	(97.0%)	0.963
	Mild	4	(0.8%)	10	(1.8%)	
	Moderate	10	(1.9%)	5	(0.9%)	
	Severe	0	(0.0%)	2	(0.4%)	
Loose Stools	None	523	(98.9%)	554	(98.4%)	0.653
	Mild	5	(0.9%)	7	(1.2%)	
	Moderate	0	(0.0%)	2	(0.4%)	
	Severe	1	(0.2%)	0	(0.0%)	
Cramping	None	519	(98.1%)	552	(98.0%)	0.602
	Mild	9	(1.7%)	8	(1.4%)	
	Moderate	1	(0.2%)	2	(0.4%)	
	Severe	0	(0.0%)	1	(0.2%)	
Pain	None	510	(96.4%)	550	(97.7%)	0.175
	Mild	12	(2.3%)	10	(1.8%)	
	Moderate	6	(1.1%)	2	(0.4%)	
	Severe	1	(0.2%)	1	(0.2%)	
Gas	None	495	(93.6%)	536	(95.2%)	0.246
	Mild	23	(4.3%)	21	(3.7%)	
	Moderate	11	(2.1%)	4	(0.7%)	
	Severe	0	(0.0%)	2	(0.4%)	
Bloating	None	522	(98.7%)	559	(99.3%)	0.272
	Mild	5	(0.9%)	3	(0.5%)	
	Moderate	1	(0.2%)	1	(0.2%)	
	Severe	1	(0.2%)	0	(0.0%)	
Nausea	None	525	(99.2%)	556	(98.8%)	0.611
	Mild	3	(0.6%)	5	(0.9%)	
	Moderate	0	(0.0%)	2	(0.4%)	
	Severe	1	(0.2%)	0	(0.0%)	
Vomiting	None	527	(99.6%)	562	(99.8%)	0.434
	Moderate	1	(0.2%)	1	(0.2%)	
	Severe	1	(0.2%)	0	(0.0%)	

Exhibit 8. GI Symptoms by Severity & Test Group

SYMPTOM	SEVERITY	FULL-FAT (N = 529)		OLEAN (N = 563)		P-values
Upset Stomach	None	518	(97.9%)	552	(98.0%)	0.837
	Mild	10	(1.9%)	8	(1.4%)	
	Moderate	1	(0.2%)	3	(0.5%)	
Indigestion	None	526	(99.4%)	560	(99.5%)	0.939
	Mild	3	(0.6%)	3	(0.5%)	
Eructation	None	524	(99.1%)	561	(99.6%)	0.178
	Mild	4	(0.8%)	2	(0.4%)	
	Moderate	1	(0.2%)	0	(0.0%)	
Constipation	None	528	(99.8%)	561	(99.6%)	0.600
	Mild	1	(0.2%)	2	(0.4%)	
Aftertaste	None	528	(99.8%)	560	(99.5%)	0.347
	Mild	1	(0.2%)	3	(0.5%)	
Bloody Stool	None	528	(99.8%)	563	(100.0%)	0.302
	Moderate	1	(0.2%)	0	(0.0%)	
Non GI	None	525	(99.2%)	555	(98.6%)	0.241
	Mild	3	(0.6%)	3	(0.5%)	
	Moderate	0	(0.0%)	4	(0.7%)	
	Severe	1	(0.2%)	1	(0.2%)	

LISTING OF SUBJECTS REPORTING ONE OR MORE SEVERE GASTROINTESTINAL SYMPTOMS

Listing of Subjects Reporting One or More Severe Gastrointestinal Symptoms

Subject Number	Test Group	Amount (ounces)	Symptoms (Reported term)	Severity	Comments
2100	TG	10.1	loose stools	Severe	Couldn't sleep
			Gas	Moderate	Losing sleet
5242	TG	1.2	Distension	Severe	Sleep affected
			Belching	Mild	
			Bloody stools	Moderate	Running to bathroom
			Diarrhea	Moderate	Running to bathroom
			BM urgency	Moderate	Running to bathroom
5341	TG	1.8	Nausea	Severe	Had to stay in bathroom
			Vomiting	Severe	Had to stay in bathroom
			Queasy	Severe	Had to stay in bathroom
			Palpitations	Severe	Unknown
6315	TG	2.1	Gas Pain	Severe	Had to double... Had to stop what I was doing
2127	Olestra	2.0	Stomach Ache	Severe	Couldn't go to school
5261	Olestra	1.8	Gas	Severe	Could not even lie down

Exhibit 9

Listing of Subjects Reporting One or More Severe Gastrointestinal Symptoms - (cont'd)

Subject Number	Test Group	Amount (ounces)	Symptoms (Reported term)	Severity	Comments
5269	Olestra	10.2	Gas	Severe	Did (activities) but uncomfortable
			Diarrhea	Moderate	Just uncomfortable
5356	Olestra	2.3	Thirst	Severe	Had to drink plenty of water, kept waking up
			Gas	Mild	
			Indigestion	Mild	
			Bloating	Mild	
6026	Olestra	0.15	Diarrhea	Severe	Couldn't sleep
6136	Olestra	0.10	Diarrhea	Severe	Couldn't go to work
			Cramping	Severe	Couldn't go to work

Exhibit 10. GI Symptom Frequencies by Onset Time, Severity & Test Group

SYMPTOM	SEVERITY	< 1 hour		1-6 hours		6-24 hours		> 24 hours	
		Full-Fat	Olean	Full-Fat	Olean	Full-Fat	Olean	Full-Fat	Olean
Diarrhea	Mild	0	0	2	7	1	3	1	0
	Moderate	0	2	2	0	8	3	2	0
	Severe	0	0	0	1	0	1	0	0
Loose Stools	Mild	0	3	0	1	4	2	1	1
	Moderate	0	0	0	1	0	0	0	1
	Severe	0	0	1	0	0	0	0	0
Cramping	Mild	1	1	4	4	4	3	0	0
	Moderate	0	0	1	1	0	1	0	0
	Severe	0	0	0	0	0	1	0	0
Pain	Mild	5	3	5	6	2	1	0	0
	Moderate	0	1	4	0	2	1	0	0
	Severe	0	0	1	1	0	0	0	0
Gas	Mild	4	5	12	13	7	3	1	0
	Moderate	1	1	4	2	5	1	1	0
	Severe	0	1	0	1	0	0	0	0
Bloating	Mild	1	1	3	2	1	0	0	0
	Moderate	0	1	0	0	1	0	0	0
	Severe	0	0	0	0	1	0	0	0
Nausea	Mild	2	1	1	4	0	0	0	0
	Moderate	0	1	0	1	0	0	0	0
	Severe	0	0	0	0	2	0	0	0
Vomiting	Moderate	0	1	0	0	1	0	0	0
	Severe	0	0	1	0	0	0	0	0
Upset Stomach	Mild	1	2	8	3	1	2	0	1
	Moderate	0	0	0	3	1	0	0	0
Indigestion	Mild	0	2	2	1	1	0	0	0
Eructation	Mild	0	0	4	2	0	0	0	0
	Moderate	0	0	1	0	0	0	0	0
Constipation	Mild	0	0	0	0	1	2	0	0
Aftertaste	None	1	2	0	0	0	0	0	0
	Mild	0	0	0	1	0	0	0	0
Bloody Stool	Moderate	0	0	0	0	0	0	1	0
Non GI	Mild	4	2	1	2	0	0	0	0
	Moderate	0	5	0	0	0	0	0	0
	Severe	0	1	1	0	0	0	0	0

Exhibit 11. GI Symptom Incidence for Subjects Contacted Within 2-4 Days

SYMPTOM	INCIDENCE	FULL-FAT (N = 478)	OLEAN (N = 489)	P-values
Any GI	No	388 (81.2%)	412 (84.3%)	0.234
	Yes	90 (18.8%)	77 (15.7%)	
Gas	No	445 (93.1%)	465 (95.1%)	0.219
	Yes	33 (6.9%)	24 (4.9%)	
Diarrhea	No	464 (97.1%)	473 (96.7%)	0.854
	Yes	14 (2.9%)	16 (3.3%)	
Pain	No	460 (96.2%)	479 (98.0%)	0.127
	Yes	18 (3.8%)	10 (2.0%)	
Cramping	No	468 (97.9%)	479 (98.0%)	1.000
	Yes	10 (2.1%)	10 (2.0%)	
Upset Stomach	No	468 (97.9%)	481 (98.4%)	0.641
	Yes	10 (2.1%)	8 (1.6%)	
Loose Stools	No	472 (98.7%)	481 (98.4%)	0.789
	Yes	6 (1.3%)	8 (1.6%)	
Nausea	No	474 (99.2%)	482 (98.6%)	0.547
	Yes	4 (0.8%)	7 (1.4%)	
Bloating	No	471 (98.5%)	485 (99.2%)	0.380
	Yes	7 (1.5%)	4 (0.8%)	
Indigestion	No	475 (99.4%)	487 (99.6%)	0.683
	Yes	3 (0.6%)	2 (0.4%)	
Aftertaste	No	477 (99.8%)	487 (99.6%)	1.000
	Yes	1 (0.2%)	2 (0.4%)	
Eructation	No	473 (99.0%)	487 (99.6%)	0.282
	Yes	5 (1.0%)	2 (0.4%)	
Constipation	No	477 (99.8%)	488 (99.8%)	1.000
	Yes	1 (0.2%)	1 (0.2%)	
Vomiting	No	476 (99.6%)	488 (99.8%)	0.620
	Yes	2 (0.4%)	1 (0.2%)	
Bloody Stool	No	477 (99.8%)	489 (100.0%)	0.494
	Yes	1 (0.2%)	0 (0.0%)	
Non GI	No	474 (99.2%)	481 (98.4%)	0.385
	Yes	4 (0.8%)	8 (1.6%)	

Exhibit 12. GI Symptom Incidence Including Intent-to-Treat Subjects

SYMPTOM	INCIDENCE	Missing (N = 13)	Full-Fat (N = 529)	Olean (N = 563)
Any GI	No	11 (84.6%)	436 (82.4%)	474 (84.2%)
	Yes	2 (15.4%)	93 (17.6%)	89 (15.8%)
Gas	No	12 (92.3%)	495 (93.6%)	536 (95.2%)
	Yes	1 (7.7%)	34 (6.4%)	27 (4.8%)
Diarrhea	No	13 (100.0%)	515 (97.4%)	546 (97.0%)
	Yes	0 (0.0%)	14 (2.6%)	17 (3.0%)
Pain	No	13 (100.0%)	510 (96.4%)	550 (97.7%)
	Yes	0 (0.0%)	19 (3.6%)	13 (2.3%)
Cramping	No	13 (100.0%)	519 (98.1%)	552 (98.0%)
	Yes	0 (0.0%)	10 (1.9%)	11 (2.0%)
Upset Stomach	No	13 (100.0%)	518 (97.9%)	552 (98.0%)
	Yes	0 (0.0%)	11 (2.1%)	11 (2.0%)
Loose Stools	No	13 (100.0%)	523 (98.9%)	554 (98.4%)
	Yes	0 (0.0%)	6 (1.1%)	9 (1.6%)
Nausea	No	13 (100.0%)	525 (99.2%)	556 (98.8%)
	Yes	0 (0.0%)	4 (0.8%)	7 (1.2%)
Bloating	No	13 (100.0%)	522 (98.7%)	559 (99.3%)
	Yes	0 (0.0%)	7 (1.3%)	4 (0.7%)
Indigestion	No	12 (92.3%)	526 (99.4%)	560 (99.5%)
	Yes	1 (7.7%)	3 (0.6%)	3 (0.5%)
Aftertaste	No	13 (100.0%)	528 (99.8%)	560 (99.5%)
	Yes	0 (0.0%)	1 (0.2%)	3 (0.5%)
Eructation	No	12 (92.3%)	524 (99.1%)	561 (99.6%)
	Yes	1 (7.7%)	5 (0.9%)	2 (0.4%)
Constipation	No	13 (100.0%)	528 (99.8%)	561 (99.6%)
	Yes	0 (0.0%)	1 (0.2%)	2 (0.4%)
Vomiting	No	13 (100.0%)	527 (99.6%)	562 (99.8%)
	Yes	0 (0.0%)	2 (0.4%)	1 (0.2%)
Bloody Stool	No	13 (100.0%)	528 (99.8%)	563 (100.0%)
	Yes	0 (0.0%)	1 (0.2%)	0 (0.0%)
Non GI	No	13 (100.0%)	525 (99.2%)	555 (98.6%)
	Yes	0 (0.0%)	4 (0.8%)	8 (1.4%)

Exhibit 13. GI Symptom Incidence by Consumption, Age Group & Test Group

SYMPTOM	AGEGRP2	INCIDENCE	0-2 oz FULL-FAT (N = 175)	0-2 oz OLEAN (N = 271)	2-4 oz FULL-FAT (N = 199)	2-4 oz OLEAN (N = 195)	4-6 oz FULL-FAT (N = 94)	4-6 oz OLEAN (N = 66)
Any GI	Teens	No	25 (96.2%)	24 (72.7%)	20 (87.0%)	20 (100.0%)	7 (63.6%)	8 (72.7%)
		Yes	1 (3.8%)	9 (27.3%)	3 (13.0%)	0 (0.0%)	4 (36.4%)	3 (27.3%)
	Adults	No	120 (86.3%)	184 (81.4%)	134 (77.9%)	146 (88.0%)	66 (83.5%)	47 (88.7%)
		Yes	19 (13.7%)	42 (18.6%)	38 (22.1%)	20 (12.0%)	13 (16.5%)	6 (11.3%)
	Seniors	No	8 (80.0%)	10 (83.3%)	4 (100.0%)	7 (77.8%)	4 (100.0%)	2 (100.0%)
		Yes	2 (20.0%)	2 (16.7%)	0 (0.0%)	2 (22.2%)	0 (0.0%)	0 (0.0%)
Gas	Teens	No	26 (100.0%)	32 (97.0%)	23 (100.0%)	20 (100.0%)	10 (90.9%)	10 (90.9%)
		Yes	0 (0.0%)	1 (3.0%)	0 (0.0%)	0 (0.0%)	1 (9.1%)	1 (9.1%)
	Adults	No	128 (92.1%)	213 (94.2%)	157 (91.3%)	158 (95.2%)	75 (94.9%)	51 (96.2%)
		Yes	11 (7.9%)	13 (5.8%)	15 (8.7%)	8 (4.8%)	4 (5.1%)	2 (3.8%)
	Seniors	No	10 (100.0%)	11 (91.7%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	1 (8.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Diarrhea	Teens	No	26 (100.0%)	31 (93.9%)	22 (95.7%)	20 (100.0%)	10 (90.9%)	11 (100.0%)
		Yes	0 (0.0%)	2 (6.1%)	1 (4.3%)	0 (0.0%)	1 (9.1%)	0 (0.0%)
	Adults	No	137 (98.6%)	220 (97.3%)	167 (97.1%)	161 (97.0%)	75 (94.9%)	51 (96.2%)
		Yes	2 (1.4%)	6 (2.7%)	5 (2.9%)	5 (3.0%)	4 (5.1%)	2 (3.8%)
	Seniors	No	10 (100.0%)	12 (100.0%)	4 (100.0%)	8 (88.9%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (11.1%)	0 (0.0%)	0 (0.0%)
Pain	Teens	No	25 (96.2%)	29 (87.9%)	21 (91.3%)	20 (100.0%)	10 (90.9%)	11 (100.0%)
		Yes	1 (3.8%)	4 (12.1%)	2 (8.7%)	0 (0.0%)	1 (9.1%)	0 (0.0%)
	Adults	No	136 (97.8%)	220 (97.3%)	165 (95.9%)	164 (98.8%)	77 (97.5%)	53 (100.0%)
		Yes	3 (2.2%)	6 (2.7%)	7 (4.1%)	2 (1.2%)	2 (2.5%)	0 (0.0%)
	Seniors	No	10 (100.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Cramping	Teens	No	26 (100.0%)	33 (100.0%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	10 (90.9%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (9.1%)
	Adults	No	136 (97.8%)	219 (96.9%)	169 (98.3%)	164 (98.8%)	77 (97.5%)	52 (98.1%)
		Yes	3 (2.2%)	7 (3.1%)	3 (1.7%)	2 (1.2%)	2 (2.5%)	1 (1.9%)
	Seniors	No	9 (90.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	1 (10.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Upset Stomach	Teens	No	26 (100.0%)	32 (97.0%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	11 (100.0%)
		Yes	0 (0.0%)	1 (3.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Adults	No	139 (100.0%)	220 (97.3%)	165 (95.9%)	164 (98.8%)	79 (100.0%)	52 (98.1%)
		Yes	0 (0.0%)	6 (2.7%)	7 (4.1%)	2 (1.2%)	0 (0.0%)	1 (1.9%)
	Seniors	No	10 (100.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Exhibit 13. GI Symptom Incidence by Consumption, Age Group & Test Group

SYMPTOM	AGEGRP2	INCIDENCE	6-13 oz FULL-FAT (N = 61)	6-13 oz OLEAN (N = 31)
Any GI	Teens	No	12 (85.7%)	8 (88.9%)
		Yes	2 (14.3%)	1 (11.1%)
	Adults	No	35 (76.1%)	16 (84.2%)
		Yes	11 (23.9%)	3 (15.8%)
	Seniors	No	1 (100.0%)	2 (66.7%)
		Yes	0 (0.0%)	1 (33.3%)
Gas	Teens	No	13 (92.9%)	9 (100.0%)
		Yes	1 (7.1%)	0 (0.0%)
	Adults	No	44 (95.7%)	18 (94.7%)
		Yes	2 (4.3%)	1 (5.3%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Diarrhea	Teens	No	13 (92.9%)	9 (100.0%)
		Yes	1 (7.1%)	0 (0.0%)
	Adults	No	46 (100.0%)	18 (94.7%)
		Yes	0 (0.0%)	1 (5.3%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Pain	Teens	No	14 (100.0%)	9 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Adults	No	43 (93.5%)	18 (94.7%)
		Yes	3 (6.5%)	1 (5.3%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Cramping	Teens	No	13 (92.9%)	9 (100.0%)
		Yes	1 (7.1%)	0 (0.0%)
	Adults	No	46 (100.0%)	19 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Upset Stomach	Teens	No	14 (100.0%)	8 (88.9%)
		Yes	0 (0.0%)	1 (11.1%)
	Adults	No	42 (91.3%)	19 (100.0%)
		Yes	4 (8.7%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)

Exhibit 13. GI Symptom Incidence by Consumption, Age Group & Test Group

SYMPTOM	AGEGRP2	INCIDENCE	0-2 oz		2-4 oz		4-6 oz	
			FULL-FAT (N = 175)	OLEAN (N = 271)	FULL-FAT (N = 199)	OLEAN (N = 195)	FULL-FAT (N = 94)	OLEAN (N = 66)
Loose Stools	Teens	No	26 (100.0%)	33 (100.0%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	11 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Adults	No	139 (100.0%)	223 (98.7%)	168 (97.7%)	165 (99.4%)	78 (98.7%)	51 (96.2%)
		Yes	0 (0.0%)	3 (1.3%)	4 (2.3%)	1 (0.6%)	1 (1.3%)	2 (3.8%)
	Seniors	No	10 (100.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Nausea	Teens	No	26 (100.0%)	30 (90.9%)	23 (100.0%)	20 (100.0%)	10 (90.9%)	11 (100.0%)
		Yes	0 (0.0%)	3 (9.1%)	0 (0.0%)	0 (0.0%)	1 (9.1%)	0 (0.0%)
	Adults	No	138 (99.3%)	223 (98.7%)	171 (99.4%)	165 (99.4%)	79 (100.0%)	53 (100.0%)
		Yes	1 (0.7%)	3 (1.3%)	1 (0.6%)	1 (0.6%)	0 (0.0%)	0 (0.0%)
	Seniors	No	10 (100.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Bloating	Teens	No	26 (100.0%)	33 (100.0%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	11 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Adults	No	136 (97.8%)	223 (98.7%)	168 (97.7%)	165 (99.4%)	79 (100.0%)	53 (100.0%)
		Yes	3 (2.2%)	3 (1.3%)	4 (2.3%)	1 (0.6%)	0 (0.0%)	0 (0.0%)
	Seniors	No	10 (100.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Indigestion	Teens	No	26 (100.0%)	33 (100.0%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	11 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Adults	No	137 (98.6%)	225 (99.6%)	172 (100.0%)	164 (98.8%)	79 (100.0%)	53 (100.0%)
		Yes	2 (1.4%)	1 (0.4%)	0 (0.0%)	2 (1.2%)	0 (0.0%)	0 (0.0%)
	Seniors	No	9 (90.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	1 (10.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Aftertaste	Teens	No	26 (100.0%)	33 (100.0%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	11 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Adults	No	138 (99.3%)	225 (99.6%)	172 (100.0%)	165 (99.4%)	79 (100.0%)	53 (100.0%)
		Yes	1 (0.7%)	1 (0.4%)	0 (0.0%)	1 (0.6%)	0 (0.0%)	0 (0.0%)
	Seniors	No	10 (100.0%)	12 (100.0%)	4 (100.0%)	8 (88.9%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (11.1%)	0 (0.0%)	0 (0.0%)
Eructation	Teens	No	26 (100.0%)	33 (100.0%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	11 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Adults	No	138 (99.3%)	224 (99.1%)	170 (98.8%)	166 (100.0%)	78 (98.7%)	53 (100.0%)
		Yes	1 (0.7%)	2 (0.9%)	2 (1.2%)	0 (0.0%)	1 (1.3%)	0 (0.0%)
	Seniors	No	10 (100.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Exhibit 13. GI Symptom Incidence by Consumption, Age Group & Test Group

SYMPTOM	AGEGRP2	INCIDENCE	6-13 oz FULL-FAT (N = 61)	6-13 oz OLEAN (N = 31)
Loose Stools	Teens	No	13 (92.9%)	9 (100.0%)
		Yes	1 (7.1%)	0 (0.0%)
	Adults	No	46 (100.0%)	17 (89.5%)
		Yes	0 (0.0%)	2 (10.5%)
	Seniors	No	1 (100.0%)	2 (66.7%)
		Yes	0 (0.0%)	1 (33.3%)
Nausea	Teens	No	14 (100.0%)	9 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Adults	No	45 (97.8%)	19 (100.0%)
		Yes	1 (2.2%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Bloating	Teens	No	14 (100.0%)	9 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Adults	No	46 (100.0%)	19 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Indigestion	Teens	No	14 (100.0%)	9 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Adults	No	46 (100.0%)	19 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Aftertaste	Teens	No	14 (100.0%)	9 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Adults	No	46 (100.0%)	19 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Eructation	Teens	No	14 (100.0%)	9 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Adults	No	45 (97.8%)	19 (100.0%)
		Yes	1 (2.2%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)

Exhibit 13. GI Symptom Incidence by Consumption, Age Group & Test Group

SYMPTOM	AGEGRP2	INCIDENCE	0-2 oz		2-4 oz		4-6 oz	
			FULL-FAT (N = 175)	OLEAN (N = 271)	FULL-FAT (N = 199)	OLEAN (N = 195)	FULL-FAT (N = 94)	OLEAN (N = 66)
Constipation	Teens	No	26 (100.0%)	33 (100.0%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	10 (90.9%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (9.1%)
	Adults	No	139 (100.0%)	226 (100.0%)	172 (100.0%)	166 (100.0%)	78 (98.7%)	53 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)	0 (0.0%)
	Seniors	No	10 (100.0%)	11 (91.7%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	1 (8.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Vomiting	Teens	No	26 (100.0%)	32 (97.0%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	11 (100.0%)
		Yes	0 (0.0%)	1 (3.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Adults	No	138 (99.3%)	226 (100.0%)	171 (99.4%)	166 (100.0%)	79 (100.0%)	53 (100.0%)
		Yes	1 (0.7%)	0 (0.0%)	1 (0.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Seniors	No	10 (100.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Bloody Stool	Teens	No	26 (100.0%)	33 (100.0%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	11 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Adults	No	138 (99.3%)	226 (100.0%)	172 (100.0%)	166 (100.0%)	79 (100.0%)	53 (100.0%)
		Yes	1 (0.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Seniors	No	10 (100.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Non GI	Teens	No	26 (100.0%)	31 (93.9%)	23 (100.0%)	20 (100.0%)	11 (100.0%)	11 (100.0%)
		Yes	0 (0.0%)	2 (6.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Adults	No	136 (97.8%)	224 (99.1%)	172 (100.0%)	162 (97.6%)	79 (100.0%)	53 (100.0%)
		Yes	3 (2.2%)	2 (0.9%)	0 (0.0%)	4 (2.4%)	0 (0.0%)	0 (0.0%)
	Seniors	No	9 (90.0%)	12 (100.0%)	4 (100.0%)	9 (100.0%)	4 (100.0%)	2 (100.0%)
		Yes	1 (10.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Exhibit 13. GI Symptom Incidence by Consumption, Age Group & Test Group

SYMPTOM	AGEGRP2	INCIDENCE	6-13 oz FULL-FAT (N = 61)	6-13 oz OLEAN (N = 31)
Constipation	Teens	No	14 (100.0%)	9 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Adults	No	46 (100.0%)	19 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Vomiting	Teens	No	14 (100.0%)	9 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Adults	No	46 (100.0%)	19 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Bloody Stool	Teens	No	14 (100.0%)	9 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Adults	No	46 (100.0%)	19 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
Non GI	Teens	No	14 (100.0%)	9 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Adults	No	46 (100.0%)	19 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)
	Seniors	No	1 (100.0%)	3 (100.0%)
		Yes	0 (0.0%)	0 (0.0%)

APPENDICES

APPENDIX A